Portneuf River TMDL Implementation Plan

assembled by:

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Introduction

Presented herein is the Portneuf River Total Maximum Daily Load Implementation Plan. All sections, except for cities of Inkom and Lava Hot Springs, were prepared or agreed to by the party subject to implementation of the plan. The plans for Inkom and Lava Hot Springs wastewater treatment facilities were written by Idaho Department of Environmental Quality and have received neither an affirmation of nor objection to the plans by either municipality.

The parties represented in this overall plan represent the major contributors to loads and wasteloads affecting beneficial uses in the Portneuf River. Their plans are included as submitted except for changes explained below. No attempts were made to modify the plans in either content or grammar.

Please note that in copying the individually submitted plans, some changes were made to accommodate distribution of the plan. For example, any pages with color are now simply black and white. Figures that were presented on paper greater than letter size (e.g., 11 in by 17 in) were reduced to 8.5 in by 11 in. Finally, some sections were submitted already bound and upon copying dark spots along the margin resulted.

Total Maximum Daily Load (TMDL) Implementation Plan

City of Pocatello, Idaho

April 1, 2003

TOTAL MAXIMUM DAILY LOAD (TMDL) IMPLEMENTATION PLAN

Contents

TOTAL MAXIMUM DAILY LOAD (TMDL)
IMPLEMENTATION PLAN

1. INTRODUCTION

The Portneuf River provides numerous benefits as it runs through the City of Pocatello for a distance of nearly ten miles. The quality of life for Pocatello's citizens is associated directly with maintenance of a healthy river with associated aquatic life and water quality. Protection of the Portneuf Valley aquifer is linked directly to the quality of its surface water as well. Pocatello joins other Portneuf River Basin stakeholders in recognizing that a coordinated effort of many interests will be required to address water quality issues on the Portneuf.

This document presents the City of Pocatello's implementation and management plan for the Portneuf River TMDL. As with many complex resource management issues, key data are not yet available to realize multiple goals with a singular, deductive plan. Accordingly, Pocatello will apply an adaptive management process in order to facilitate a phased implementation of the TMDL. The plan is intended to be dynamic in the sense that it can accommodate new information and changing opportunities and conditions.

TMDL implementation goals for the City of Pocatello include:

- Removal of the Portneuf River from the 303 (d) list,
- Program design and implementation with an eye towards cost-effectiveness,
- Stakeholder involvement throughout the basin in TMDL program implementation,
- Attenuation of urban nonpoint source pollution by educating citizens about pollution prevention and erosion control as well as integrating other aspects of storm-water control,
- Stakeholder and public education in river ecology, modeling, and other applicable topics,
- Promotion of soil conservation basin-wide by reducing soil erosion and sediment delivery throughout forest, range, urban, and agricultural lands, and
- Fish and wildlife habitat improvement.

2. PHASED IMPLEMENTATION

When faced with a complex problem where little information is known, a phased implementation approach is the logical choice (USEPA 1991). The Portneuf River subbasin provides an excellent opportunity both to put into action an adaptive management process that will take advantage of information already known and allow stakeholders to begin the cleanup process without waiting for further studies. The appeal of the adaptive management approach is that it allows remedies to be initiated immediately and, in conjunction with study and monitoring programs, allows the regulators to assess progress and guide future control measures.

As applied to water quality improvement in the Portneuf, an adaptive management strategy allows us to expand existing pollution reduction programs and initiate new measures expected to improve conditions. Concurrent with these immediate steps to rehabilitate river conditions, the monitoring and assessment program will provide information on environmental response to these control measures and how to optimize the design and implementation of Best Management Practices (BMPs). The beauty of an adaptive management strategy is that it allows us to move forward with implementation in spite of the acknowledged shortcomings in our knowledge of the system.

Phase I of the TMDL implementation began in 1998 and will continue through 2004. Phase I consists of assessing current and past improvements, and implementing control measures as outlined later. Phase I also consists of development and implementation of a collaborative water quality monitoring program by both watershed stakeholders and IDEQ. Phase I will end in 2004, when we will assess progress to that point, evaluate water quality data, update the TMDL, and refine the control measures for Phase II. Phase II will pick up from there and continue until 2009. Long term monitoring established during Phase I will continue throughout the life of implementation in order to assess improvements and act as the feedback loop necessary to apply adaptive management strategies. At the end of 2009 control measures will be reassessed and future plans will be determined.

3. POLLUTION ALLOCATION REFINEMENT

The initial allocation of pollutant loads presented in the TMDL plan (April 1999 Section 3.2 and 7 July 2000 Portneuf TMDL Addendum) was prepared with the knowledge that pollutant allocations would be revisited and potentially revised once more extensive data became available. The load allocations and associated pollutant reductions required to meet target levels given in the TMDL plan represent estimates made with varying levels of uncertainty. Some pollutant loads (e.g., from point sources subject to regular monitoring programs) are fairly well quantified, while other loads (e.g., sediment from non-point sources) are based on gross estimates of flow volume as well as concentration and should not be considered absolute representations of present conditions.

The uncertainty related to pollutant loads, especially in middle and upper portions of the basin above Pocatello, dictates a phased approach be taken to implement the TMDL, with subsequent analyses used to revise the pollutant load reduction and allocation scheme. The allocations presented in the TMDL plan will be refined through a monitoring program that focuses on the pollutant load sources that are poorly quantified but thought to be significant.

The allocation is calculated according to the formula shown in the box below:

Equation 3.1 - TMDL Allocation

$$LC = WLA + LA + MOS$$

LC - Loading Capacity;

The maximum amount of pollutant loading that the water body can receive without violating water quality standards,

WLA - Wasteload Allocation;
The portion of a receiving water's loading capacity that is allocated to existing and future point sources,

LA - Load Allocation;
The portion of the receiving water loading capacity that is allocated to existing and future nonpoint sources and to natural background sources,

MOS - Margin of Safety;
The prescribed mechanism to account for the uncertainty in determining the amount of pollutant load and its effect on water quality.

The load allocation will be refined taking into account the following factors.

3.1 Future Growth

A portion of the WLA should be reserved for future growth. If future growth is not planned for, then no pollutant loading will be available for new sources or for the expansion of existing sources.

3.2 Seasonal or Climatic Variations in Pollutant Load

Variations in climate, hydrology and effluent discharge need to be considered in allocating pollutant loads. An acceptable pollutant load may vary depending on

rainfall and seasonal factors including solar radiation and temperature.

3.3 Temporal Aspects

The appropriateness of various time frames comes into play when allocating pollution loads. In some instances an annual load may be appropriate, for example when the goal may be to restrict nutrient loading to a downstream impoundment. In other cases a daily maximum pollutant concentration may be most critical to protect beneficial uses.

3.4 Antibacksliding Requirements

The Clean Water Act specifies requirements that generally prohibit reissuing an NPDES permit with less-stringent technology-based effluent limits than those contained in an existing permit.

3.5 Antidegradation Requirements

Loading allocations must be consistent with the antidegradation policy in Idaho law (Idaho Code Section 39-3603, IDAPA 58.01.02.051), which prohibits an increase in loading that would impair an existing use.

3.6 Margin of Safety

The MOS provides a means to account for the uncertainty associated with TMDL projects. The MOS can be included implicitly, by means of conservative assumptions, or explicitly, by setting water quality targets at more conservative levels than analytical results indicate.

3.7 Allocation Refinement

The pollutant allocations in the TMDL Plan are based on data of varying levels of completeness. Some of the data used for the pollutant allocation are dated (20+ years) and do not include sufficient resolution to quantify existing loads to any more than a gross degree. DEQ agrees that additional data should be collected and the load and wasteload allocations reevaluated in light of new information. As DEQ did in the approved Mid-Snake River TMDL for total phosphorus, initial load and wasteload allocations are set that will be reevaluated with new data.

3.8 Principles of Fairness

Loading allocations among point and nonpoint sources should be consistent with principles of fairness as enumerated below. Information should be adequate to base decisions, with the monitoring intensity and associated level of uncertainty tailored to match the level of monetary significance of the water quality and aquatic habitat issues.

- Allocations should treat like dischargers equally (non-point = non-point and point = point), with considerations made to promote equity with respect to the costs of pollutant removal.
- There must be an equitable allocation between point and nonpoint sources.
- Dischargers should not be penalized for past voluntary pollution reduction measures. This principal of giving credit for expenditures prior to TMDL-required pollutant reductions should be considered when making future allocations.
- The allocations should not penalize dischargers in any part of the basin because of naturally occurring background concentration.
- Principles of equity should extend beyond the Portneuf River Basin to include dischargers throughout the entire Snake River Basin.

4. TEMPORAL ISSUES

4.1 Schedules for Refined Loading Assessment

To the extent that it can with available and attainable resources the City intends to work with DEQ and other stakeholders on preparing a refinement of the pollutant loading allocation. These activities are expected to occur as shown on the following table.

Date	Activity
March 2001	Begin assessing data and expand monitoring as necessary.
March 2001 through March 2004	Collect and assess water quality data.

April 2004	Complete refined allocations.
July 2004	Submit new loading analysis and allocations to EPA.

4.2 Recovery Time Frames

Implementing water pollution reduction measures will take time. It is unrealistic to expect that damage inflicted on the environment – in some cases, the result of over a century of deleterious land use practices -- can heal instantly, or even within a span of a few years. To recover environmental loss, it takes time to plan, secure funds, and implement management practices. Because of such factors as ground water and sediment retentiveness, we can anticipate a lag period of years -- if not decades in more recalcitrant cases—to realize improvements in pollutant reduction. Factors such as the extended drought periods and the frequency of channel scouring floods can also affect the time required for recovery of the river ecosystem.

Re-growth of riparian vegetation and channel function can take many years before significant impacts are realized. On a positive note, in response to the fencing of livestock and the implementation of other conservation measures, tangible improvement has already occurred in the upper Portneuf subbasin during the1990's. If given the opportunity, rivers can heal themselves.

5. PROBLEMS AND UNCERTAINTIES IN THE PORTNEUF RIVER TMDL

5.1 Uncertainties in the TMDL Analysis

Load analyses were made in the TMDL that were based on available water quality data. Uncertainties about the loading analysis are outlined below:

- It is not known whether the historical flow and pollutant concentration data reflects current conditions. Most data are 10 to 20 years old and do not reflect changes over the last decade with respect to non-point sources (NPS).
- The TMDL established reduction targets on the main stem Portneuf River. It is not known how these reduction targets apply to listed tributaries, as most of these data are poor.
- Water quality from urban runoff has not been measured; consequently, it is difficult to design appropriate implementation measures.
- We lack a defensible scientific basis to evaluate attainment of beneficial uses related to nutrients.

- Uncertainty exists regarding beneficial use impairment from some listed pollutants. For example, oil and grease was listed as a pollutant of concern in the Portneuf below the urbanized areas, although no oil or grease has been detected thus far in monitoring over the past year.

5.2 Pollution Targets

Targets are essential components of the TMDL process, and will be used (as specified in Section 3 of the TMDL) to frame the initial scope and direction of pollution reduction programs. Because the targets were not based on specific conditions in the Portneuf River, further information may lead to a revision -- upward or downward -- of the target concentrations. Until the final targets are refined, implementation should be phased in. Targets should be seen as goals and refined as necessary, based on monitoring results from implementing controls. By monitoring both prior to and during the application of controls, results can be used to refine control strategies in order to accommodate those that are working and to alter those that are not effective.

5.3 Holistic River Basin Management

Specifying appropriate levels of pollution reduction for the Portneuf River requires a holistic perspective that looks beyond this watershed to adjoining Snake River watersheds upstream and down. The TMDL implementation plans for the American Falls Reservoir reach of the Snake River as well as other adjoining water bodies will be developed over the next few years. These TMDL plans should reflect the costs and benefits of pollution reduction measures in the contributing subbasins. For example, if it is found that background phosphorus levels in the Portneuf River are high relative to other Snake River catchments, we might reach the point in TMDL implementation where to attain necessary targets in American Falls Reservoir, it would be most efficient from a basin-wide perspective to emphasize further nutrient reductions in watersheds with lower phosphorus content parent bedrock.

5.4 Anthropogenic Influences and Background Pollutant Loads

We do not know what sediment and nutrient levels existed before anthropogenic or pre-European settlement influences. Given the soils and bedrock type of the Portneuf River Subbasin as well as the knowledge that large deposits of phosphate exist in the area, the targets for nutrients and sediment may not be attainable. Consequently, BMPs alone may not be able to bring the subbasin nutrient and sediment yield below specified target levels.

"Natural background sources can enter a water body and be modified at any point in the hydrologic cycle through atmospheric deposition, surface runoff, groundwater flows, and internal sources (e.g., bottom sediments). Insofar as "anthropogenic sources also can enter the hydrologic cycle at these same points, it is difficult to differentiate between the two sources." The inherent difficulties of separating natural background from anthropogenic sources also apply to determining load reductions that are attainable. If a source is uncontrollable it is not reasonable to try to allocate source reductions. "A more reasonable approach is to define natural background to represent "best attainable" conditions considering controllable sources within a finite time and reasonable economics." Natural background levels represent minimally impacted systems that may include anthropogenic impacts considered to be irreversible or uncontrollable.

[Note: The proceeding paragraph drawn primarily from Massirer, et. al., 2002.]

5.5 Flow Regime

Volume and timing of water flows in the Portneuf affect the river's ability to assimilate sediment and nutrients. A TMDL is not required for flow, although alteration of the flow regime could help sustain beneficial uses. We must further the understanding of the hydrology of the Portneuf River subbasin during wet and dry years to be able to develop flow regime alternatives. There may be several options available for increasing flows in the river while fully protecting established water rights, such as water conservation projects, leases of water rights, conjunctive use management, or river impoundment management that could be used to augment flow during critical periods. Because other water quality improvement measures may reach a point of diminishing returns, the stakeholders are willing to explore appropriate flow enhancing alternatives.

5.6 Loading Capacity for Nutrients

The TMDL establishes reduction targets on the main stem and applies those target reductions accordingly to the tributaries. Due to data limitations, however, the loading capacity of the Portneuf River for nutrients established in the TMDL is subject to refinement. Further study that relates to in-stream assimilative capacity is also needed to properly conduct nutrient WLAs and LAs. This requirement of the TMDL evaluation process will be addressed during the design of the monitoring program.

5.7 Nutrient Targets and Excessive Aquatic Vegetation

Although nutrient targets for the Portneuf River have been established to protect beneficial uses, the linkage of nutrient targets to attainment of beneficial uses of the Portneuf River caused by excess aquatic vegetation has not been defined. A better quantification of the extent to which beneficial uses in the Portneuf River are impaired due to excessive aquatic vegetation is necessary in order to achieve specified targets. Uncertainty exists with respect to whether reductions in nutrient loads from surface waters will result in reduced impairment of beneficial uses. The initial step is to better quantify beneficial use impairment.

5.8 Attainability

Once pollutant loading is reduced through control strategies and implementation of BMPs, the plan will assess compliance with water quality standards. It may become necessary to evaluate beneficial use attainability. A Use Attainability Analysis (UAA) is the process designated under the Clean Water Act to be used when beneficial uses for a waterbody do not or cannot meet the fishable-swimmable goals of the act. The UAA is a structured, scientific assessment of the factors affecting the attainment of a use which may include physical, biological, and economic factors as described in 40 CFR 130.10(g).

5.9 Reasonable Assurance

For watersheds that have a combination of point and nonpoint sources where pollution reduction goals can only be reasonably achieved by including some nonpoint source reduction, a reasonable assurance that reductions will be met must be incorporated into the TMDL (EPA, 1991). The load reductions for the Portneuf River TMDL Implementation Plan will rely on nonpoint source reductions in order to meet both the load allocations to achieve desired water quality and to restore designated beneficial uses.

Further, both to ensure that nonpoint source reduction mechanisms are operating effectively, and to give some quantitative indication of the reduction efficiency for in-place BMPs, monitoring will be conducted. For example, if instream monitoring indicates either an increasing total phosphorus concentration trend (not directly attributable to environmental conditions) or a violation of standards despite use of approved BMPs or knowledgeable and reasonable efforts, then BMPs for the nonpoint sources activity must be modified by the appropriate agency to ensure protection of beneficial uses (Subsection 350.02.b.ii). This process is known as the "feedback loop," in which BMPs or other efforts are periodically monitored and modified if necessary to ensure protection of beneficial uses (Figure 5.1). With continued instream monitoring, the TMDL will initiate the feedback loop process and will evaluate the success of BMP implementation and its effectiveness in controlling nonpoint source pollution.

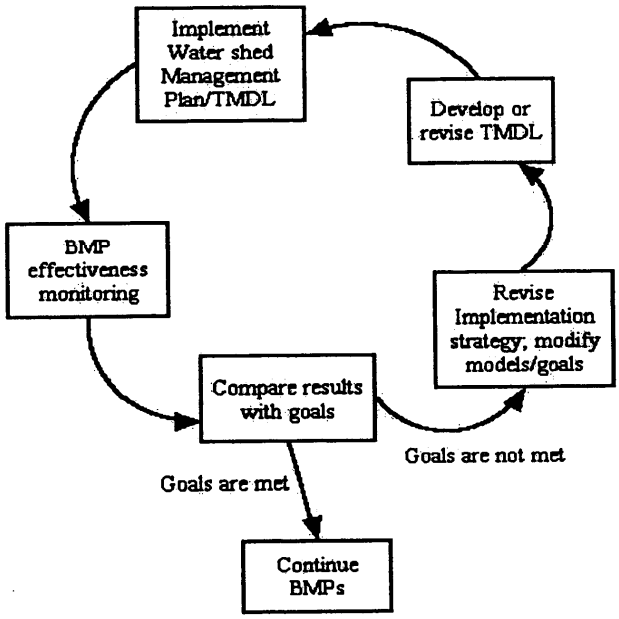

Figure 5.1 - Feedback loop

The State of Idaho uses a voluntary approach to control agricultural nonpoint sources. However, regulatory authority can be found in the state water-quality standards (IDAPA 58.01.02350.01 through 58.01.02.350.03). IDAPA 58.01.02.054.07 refers to the Idaho Agricultural Pollution Abatement Plan (IAPAP) that provides direction to the agricultural community for approved BMPs. A portion of the IAPAP outlines responsible agencies or elected groups (Soil Conservation Districts or SCDs) that will take the lead if nonpoint pollution problems require addressing. With respect to agricultural activity, the local SCDs are assigned to assist the landowner/operator to develop and implement BMPs to abate nonpoint pollution associated with the land use. If a voluntary approach does not succeed in abating the pollutant problem, the state may provide injunctive relief for those situations that may be determined imminent and substantial danger to public health or environment (IDAPA 16.01.02350.02 (a)).

If on the other hand, nonpoint pollutants are determined to be impacting beneficial uses and the activity already has in-place referenced BMPs, or knowledgeable and reasonable practices, the State may request that the BMPs be evaluated and/or modified in order to determine appropriate actions. If evaluations and/or modifications do not occur, injunctive relief may be requested (IDAPA 58.01.023.50.2, ii (l)).

It is expected that a voluntary approach will be able to achieve LAs needed in the Portneuf subbasin. Public involvement in conjunction with the eagerness of the agricultural community has historically demonstrated a willingness to implement BMPs to protect water quality. In the past, state and federal cost-share projects have provided the agricultural community technical assistance, information and education, and cost share incentives to implement BMPs. The continued funding of these projects will be critical for successful achievement of LAs in the Portneuf subbasin.

6.0 IMPLEMENTATION ACTIONS BY POINT SOURCE DISCHARGERS

The NPDES permit program regulates point source discharges, with NPDES permits issued on a 5-year cycle. The Clean Water Act requires NPDES permits for point sources to be consistent with an approved TMDL implementation plan. Control strategies planned as part of TMDL implementation for point sources are outlined in this section.

6.1 Pocatello Water Pollution Control (WPC) Facility

The WPC Facility serves both the Cities of Pocatello and Chubbuck. The WPC facility removes the majority of organic matter and suspended solids from the sanitary sewerage, using primary treatment, secondary treatment process, and disinfection. The facility was upgraded in 1990 with a de-chlorination facility to reduce effluent toxicity. An anaerobic selector basin was installed in 1997 to control bulking organisms and expand the capacity of the WPC facility. The anaerobic selection process also removes a minimum of 50 % of total phosphorus.

6.1.1 Short-Term

- Upgrade plant by 2004 to include nitrification, which will convert ammonia to nitrate and reduce problems with un-ionized ammonia and oxygen demand associated with ammonia. Maintain or improve enhanced biological phosphorus removal and improve plant facilities to provide the foundation for future expansion that may be desired.

- Continue monitoring program of plant effluent and river as needed to implement TMDL Plan, determine optimal nutrient control strategies, and evaluate opportunities for effluent trading. Monitoring program includes installation and operation of stations to measure dissolved oxygen, temperature, and nutrients in the Portneuf River, as well as to monitor effluent quality at the Water Pollution Control Plant.

6.1.2 Long Term

- Once nitrification is operational and Phase I TMDL implementation monitoring results are available (2004), the possible benefits to river quality, if any, of additional nitrogen treatment (e.g., denitrification) will be evaluated in conjunction with facilities planning for biological nutrient removal.

- Based on information presently available, the WPC Plant goal is to improve phosphorus treatment up to 90% of primary effluent (approximately 0.9 mg/L total phosphorus in final effluent).

- Evaluate opportunities for effluent trading and participate to an appropriate extent if it is shown to be the most cost-effective means to further reduce pollutant loading to the Portneuf.

The facilities improvements identified above, as short-term pollution reduction measures, are included as requirements in the Pocatello WPC Facility's NPDES permit, and are scheduled to be completed by the spring of 2004. The capital cost of improvements at the WPC Facility over the past five years has been more than $20 million. The relative benefits to river quality of additional nutrient removal at the WPC Facility compared to other pollutant reduction measures in the basin will be evaluated in conjunction with the updated pollutant loading analysis and allocation planned for 2004 (see Section 3.). Further pollution control enhancements beyond those contained in the current permit should not be required of Pocatello until the evaluation of the updated analysis and allocation is completed.

Pocatello contests the validity of the TMDL in several respects and has filed challenges to the TMDL both in state court and at IDEQ. These challenges were administratively dismissed with the concurrence of all parties, preserving Pocatello's rights to challenge the TMDL when it is applied to Pocatello's NPDES permits. However, the City wishes to work cooperatively to reduce its nutrient and other discharges. The City intends to implement the measures listed, as funding becomes available in these difficult

economic times.

6.2 City of Pocatello Urban Runoff

In 1998, the City of Pocatello committed to complying with the impending NPDES Phase II storm water regulations by creating an environmental engineer position in order to coordinate activities related to urban runoff. Since then, partnering with IDEQ, the City has begun an intensive monitoring program, created a watershed advisory group, developed draft Phase II BMPs, and submitted the NPDES Phase II permit application to EPA.

Consistent with EPA policy, the City's approach to controlling pollutants from its stormwater runoff focuses on implementation of appropriate BMPs. Implementation of these BMPs to control pollutants in storm water discharges involves an adaptive, iterative approach. The variability of stormwater runoff and the collection system make it difficult to determine with precision or certainty the actual loadings from various land uses within the City, and the expected loading reductions that will accrue due to implementation of the BMPs. The City expects that the BMPs will result in pollutant reductions, but the magnitude of these reductions (i.e., whether they will be 10, 20, or 30%) will be difficult and expensive to quantify with precision. The primary means of measuring improvement in pollutant loads from Pocatello urban runoff will be the monitoring network, which includes stations located above and below the City limits.

Additionally, the City received EPA 319 grants to design and construct two wetlands to improve and measure the effects on water quality from storm water runoff. Results from this these wetlands and others will be applied in future applications to improve water quality. A stormwater quantity master plan has been developed and will be updated in the next few years. Designs on two grassed detention/treatment ponds on university property have been completed. The City has initiated a build-out analysis that will consider and plan for the impacts for a growing city in relation to its watershed and other environmental factors. Ordinances related to water quality will be developed over the next few years upon adoption of the comprehensive plan.

6.2.1 Short Term

- Continued monitoring of the Portneuf River, stormwater runoff monitoring.
- Installation and operation of a monitoring station upstream from the City of Pocatello.
- Phase II permit application and implementation.
- Construction BMPs for new developments.
- Develop and instigate education and awareness programs.
- Stormwater inlet stenciling.
- Identify and map existing septic systems.

- Map soil strata for infiltration properties.
- Organize annual river cleanup campaigns.
- Continued maintenance of stormwater collection systems.

6.2.2 Long Term

- Strategies will be formulated based on the results of the stormwater monitoring and pilot programs. As critical areas are identified, appropriate, targeted, remediation actions will be taken. Appropriate actions may include additional constructed wetlands, end-of-pipe treatments, and pollution prevention actions.
- Comply with and revisit the Phase II permit, including the refinement of BMPs for pre and post construction based on experiences as well as cooperative demonstration projects with developers.
- Pursue the construction of detention and treatment facilities.
- Develop an erosion control manual for development.
- Camera and map connections to the storm drain and eliminate illegal connections.
- Work toward connecting septic and disposal systems to the sanitary sewer.
- Continue monitoring and analyzing data, establish and revisit goals, and adjust implementation strategies.

7.0 Nonpoint Source Reductions

The process to control nonpoint source pollution is identified in the Non-point Source Management Plan (December 1999) and the Idaho Water Quality Standards and Wastewater Treatment Requirements (Section 350). Nonpoint source activities are required to operate according to state approved BMPs; or, in the absence of approved BMPs, activities must be conducted using "knowledgeable and reasonable efforts to minimize water-quality impacts"(Subsection 350.02.a). Routine instream monitoring will be required in order to evaluate overall water quality trends within the watershed. New or developing BMPs may incorporate on-site monitoring to evaluate reduction efficiencies. If instream monitoring indicates a violation of standards or targets, despite use of approved BMPs or knowledgeable and reasonable efforts, then BMPs for the nonpoint source's activity must be modified by the appropriate agency (Subsection 350.02.b.ii). During the initial implementation phase stakeholders will aggressively explore options for non-point source reductions, including pollution trading.

With continued instream monitoring, this TMDL implementation plan will initiate the feedback loop process and will evaluate the success of BMP implementation and its effectiveness in controlling nonpoint source pollution.

[Note: The section above was modified from p. 74 of Cascade Reservoir Phase II Watershed Management Plan, December 1998. Idaho Department of Environmental Quality]

8.0 Pollutant Trading

Pollutant trading is a market-based, business-like means to help solve water quality problems by focusing on cost-effective, watershed level solutions to problems caused by discharges of pollution. Pollutant trading is most practical when pollution sources face substantially different pollution reduction costs. Typically, a party facing relatively high pollution reduction costs compensates another party to achieve an equivalent, though less costly, pollutant reduction. The result is overall lowered pollution discharges and pollution reduction costs.

Most importantly, pollutant trading is voluntary. Parties trade only if both are better off as a result of the trade. Pollutant trading does not create any new regulatory obligations because trading systems are designed to fit within existing regulatory frameworks. A successful pollutant trading program will create flexibility that allows selection of pollutant reduction methods to be based on financial merit while ensuring water quality goals are met.

Implementation and restoration efforts need to concentrate on subwatersheds with the highest pollutant loads and where improvements will have the most impact. Upstream investments, including rehabilitation of riparian zones and restoration of natural stream channels and associated flood plains, may provide the most cost effective means to mitigate sediment and nutrient impacts to surface waters. Pollutant trading may offer a useful means to facilitate the application of funds to areas where the most cost-effective control measures can be achieved. Application of pollutant trading to the Portneuf Subbasin will be actively pursued.

9.0 MILESTONES FOR MEASURING PROGRESS

Support of beneficial uses will be measured through water quality, habitat, fisheries and BURP monitoring programs. At several key points during program implementation, stakeholders will evaluate progress at reducing impairment of beneficial use. At the end of each five-year period (2004, 2009) Pocatello will join with other stakeholders in reviewing and analyzing available data, assessing progress towards support of beneficial uses, and making recommendations for future program modification. If future data indicate that a beneficial use cannot be supported in a particular river reach, it may become appropriate to pursue a "use attainability analysis," which provides a mechanism to alter the beneficial use designation.

REFERENCES

Massirer, P., D.E. Ford, K.W. Thornton, and T. Soerens. 2002. FTN Associates, Little Rock AR. Paper Presented at Water Environment Research Foundation

(WERF) Workshop #W113 Navigating the TMDL Process: A Research Focus. Chicago, Illinois. September 28, 2002.

USEPA 1991. *Guidance for water quality-based decisions: The TMDL process.* EPA 440/4-91-001. U.S. Environmental Protection Agency, Assessment and Watershed Protection Division, Washington, DC.

City of Inkom Wastewater Treatment Plant Implementation Plan

Wasteload estimates (from Portneuf River Total Maximum Daily Load plan)

Estimated load (based data from Lava Hot Springs WWTP): 0.21 tons/yr total inorganic nitrogen (TIN), 0.21 tons/yr total phosphorus (TP)
Wasteload allocation: 0.07 t/yr TIN, 0.13 t/yr TP

Concerns

The load estimate and allocation for the Inkom Wastewater Treatment Plant (WWTP) were based on data from a single sampling event (28 September 1999) at the Lava Hot Springs WWTP. It is unknown if these concentrations adequately reflect discharge from the Inkom WWTP. Therefore, the first priority is to broaden current monitoring at the WWTP such that resultant information will allow for a more accurate estimate of the current wasteload from the WWTP into the Portneuf River.

The Environmental Protection Agency will be renewing the City's NPDES discharge permit in 2003. The City anticipates that as part of a revised NPDES permit an updated wastewater facilities plan will be required. As such the City will likely prepare a new plan. The additional information collected from expanded monitoring will help guide the direction of this plan.

Plan

1. Expand current monitoring plan. Work with Idaho Department of Environmental Quality (DEQ), and possibly City consultants, to expand both ambient river and wastewater lagoon effluent monitoring. Increased monitoring will be based on season, and will include analysis for nutrients.
2. Determine input by WWTP of nitrogen and phosphorus to river and recalculate wasteload allocations.
3. Updated monitoring data will be considered during preparation of the wastewater facilities plan for the new NPDES permit.

Timeline

2003 In cooperation with Idaho Department of Environmental Quality expand monitoring of both wastewater lagoon effluent and Portneuf River. Estimate new WWTP wasteloads for total inorganic nitrogen, total phosphorus, and total suspended solids. Consider hiring a consulting firm to assist the City in preparing a new wastewater facilities plan in anticipation of the issuance of a new NPDES permit.

2004 Based on information from expanded monitoring, incorporate any required reductions into a new wastewater facilities plan. Finish new wastewater facilities plan, including best management practices as necessary to reduce wasteloads.

2005 Implementation of new wastewater facilities plan begun.

Funding

The City of Inkom will consider applying for a planning grant through the State Revolving Loan Fund to provide matching funds for an update of the wastewater facilities plan. The City, possibly through the state grant, and DEQ will cover funding for wastewater effluent sampling and ambient monitoring. Funds will be sought for any changes to current operations suggested by the new wastewater facilities plan.

City of Lava Hot Springs Wastewater Treatment Plant Implementation Plan

Wasteload estimates (from Portneuf River Total Maximum Daily Load plan)

Estimated load: 0.04 tons/yr total inorganic nitrogen (TIN), 0.04 tons/yr total phosphorus (TP)
Wasteload allocation: 0.02 t/yr TIN, 0.03 t/yr TP

Concerns

The load estimate and allocation for the Lava Hot Springs (LHS) Wastewater Treatment Plant (WWTP) were based on data from a single sampling event (28 September 1999). It is unknown if the concentrations sampled at that time adequately reflect discharge throughout the year. Therefore, the first priority is to broaden current monitoring at the WWTP such that resultant information will allow for a more accurate estimate of the current wasteload from the WWTP into the Portneuf River.

The Environmental Protection Agency may be renewing the City's NPDES discharge permit in 2003. The City anticipates that as part of a revised NPDES permit an updated wastewater facilities plan will be required. As such the City has already undertaken preparation of a new plan. The additional information collected from expanded monitoring will help guide the direction of this plan.

Plan

1. Expand current monitoring plan. Work with Idaho Department of Environmental Quality (DEQ) and the City's consultants to expand both ambient river and wastewater lagoon effluent monitoring. Increased monitoring will be based on season, and will include analysis for nutrients.
2. Determine input by WWTP of nitrogen and phosphorus to river and recalculate wasteload allocations.
3. Updated monitoring data will be considered during preparation of the wastewater facilities plan for the new NPDES permit.

Timeline

2002 Engineering consultant to work on wastewater facilities plan hired. Ambient monitoring of Portneuf River begun.

2003 Expanded monitoring continued in conjunction with Idaho Department of Environmental Quality. Estimate new WWTP wasteloads for total inorganic nitrogen, total phosphorus, and total suspended solids. Incorporate any required reductions into a new wastewater facilities plan. Finish new wastewater facilities plan, including best management practices as necessary to reduce wasteloads.

2004 Implementation of new wastewater facilities plan begun.

Funding

Updating of the wastewater facilities plan is presently underway with costs absorbed by the City of Lava Hot Springs and State of Idaho under a planning grant through the State Revolving Loan Fund. The City, through the state grant, and DEQ are funding the wastewater effluent sampling and ambient monitoring. Funds will be sought for any changes to current operations suggested by the new wastewater facilities.

FMC Idaho, LLC
Portneuf River TMDL Implementation Plan

TMDL Wasteload

Estimated Current Load

4.53 tons/year of total inorganic nitrogen (TIN)
1.74 tons/year of total phosphorus (TP)

Wasteload Allocation

0.96 tons/year of TIN
0.24 tons/year of TP

Area of concern

303(d) list; Portneuf River – Fort Hall Reservation boundary to Chesterfield Reservoir

Source and party responsible for providing plan for implementing corrective actions

FMC Idaho discharges into the Portneuf River through the IWW Ditch (NDPES Permit Number: ID-000022-1).

Plan

1. Change content of discharge from process wastewater to non-process wastewater

2. Reduce overall effluent discharge (i.e., reduce flows)

3. Completely eliminate the discharge

Timeline

Year 1
Reduce overall effluent discharge (i.e., reduce flows) to 2.36 cfs from about 3.23 cfs
Reduce TIN concentration to an average of 1.47 mg/l equal to an annual load of 3.42 tons
Reduce TP concentration to an average 0.032 mg/l equal to an annual load of 0.07 tons

Year 2
Completely eliminate the discharge resulting in no load to the Portneuf River (accomplished in August, 2002)